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Markus Hund

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EXAMINER

FRANK, RODNEY T

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/598,045	<b>Applicant(s)</b> HUND ET AL.	
	<b>Examiner</b> RODNEY T. FRANK	<b>Art Unit</b> 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 30-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 35,36,39,43 and 47 is/are objected to.
- 8) ☐ Claim(s) 30-34,37,38,40-42,44-46 and 48 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/16/2006</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 30 and 44 are objected to because of the following informalities:
  - In line 6 of claim 30, the phrase “(New) The” should be replaced with just –the—
  - In line 2 of claim 44, the phrase “(New) The” should be replaced with just –the—

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 30, 31, 33, 37, 44, 45, and 46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claims 30, 33, and 44, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

5. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat.

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App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 31 recites the broad recitation 1mm and 15 mm, and the claim also recites 1 mm and 3 mm which is the narrower statement of the range/limitation.

6. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 37 recites the

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broad recitation  $1\text{ cm}^3$  and  $10\text{ cm}^3$ , and the claim also recites  $2\text{ cm}^3$  and  $5\text{ cm}^3$  which is the narrower statement of the range/limitation.

7. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 45 recites the broad recitation less than 600 nm apart from one another, and the claim also recites preferably less than 200 nm apart from one another, and in particular less than 20 nm apart from one another which is the narrower statement of the range/limitation.

8. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat.

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App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 46 recites the broad recitation less than 0.04 parts per thousand, and the claim also recites preferably less than 0.004 parts per thousand, and in particular less than 0.0004 parts per thousand which is the narrower statement of the range/limitation.

9. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 46 recites the

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broad recitation less than about 0.0035 parts per thousand, and the claim also recites preferably less than about 0.00035 parts per thousand, and in particular less than about 0.000035 parts per thousand which is the narrower statement of the range/limitation.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 30, 31, 33, 34, 37, 38, 40-42, 44, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magerle (U.S. patent Number 6,546,788). Magerle discloses that the invention relates to a device for determining the spatial distribution of properties of a notably heterogeneous sample (1). The device comprises: a microscope (2) having a control (21) for the three-dimensional section of the topography  $z_n(x,y)$  of the surface  $n$  of a sample (1); a probe (3) having a control (31) for the high-resolution detection of one or more properties  $P_j$  of the sample (1) on the topography  $z_n(x,y)$  of the surface  $n$ ; a device (4) for removing material, for example a plasma etching device for etching with reactive gases or liquids or for chemomechanical polishing, which has a control (41) and by means of which in a removal process  $A_n, n+1$  a layer can be removed from the surface  $n$  of the sample (1); a computer-assisted image processing device (6) which is equipped such that from a sequence of surface topographies  $z_n(x,y)$  to  $z_{n+m}(x,y)$  determined by the microscope and from the properties  $P_j(z_n(x,y))$  to

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$P_j(z_n+m(x,y))$  detected on said topographies it is able to generate a three-dimensional image of the sample (Please see the abstract).

12. Magerle discloses a scanning probe microscope device. The device is disclosed to be a microscope, which is well known to have a base and a frame and a measurement table by those of ordinary skill in the art. The device is disclosed to utilize an ablation device (4) which is used to perform one of various reactive processes in order to prepare a sample. One such process is a plasma etching of the sample. Another disclosed process is a chemical reactive process. During such a process, the device would essentially serve as a reaction chamber and would therefore be considered a functional equivalent to such a chamber. While not disclosed as such, if the process were to be a chemical reactive process, then one of ordinary skill in the art would want to have the chamber enclosed so that the process would be able to occur in a controlled environment in order to obtain the desired results. Thus a cover for the reaction chamber would be obvious to one of ordinary skill in the art. The device is disclosed to operate to move in the xy plane to make measurements.

With respect to claim 31, column 1, lines 36 through 39 disclose that the probe is known to operate very close to the sample, usually at a few nanometers or less, thus disclosing a distance that would be within the range of those claimed.

With respect to claim 33, since the ablation device/reaction chamber is disclosed to be used for chemical and plasma etching processes. With this in mind, though not explicitly disclosed as such, it would be obvious to one of ordinary skill in the art to



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utilize and inlet and outlet in order to supply and drain the fluid used in the various etching and chemical process that occur in said device/chamber.

With respect to claim 34, since the device is disclosed to perform a plasma etching operation, then there must be some plasma generation means used in order to generate the plasma that is used by the process.

With respect to claim 37, while the specific dimensions of the ablative device/chamber are not explicitly disclosed, the chamber would have to be sized to be sufficient to hold the various samples of interest. Further, the courts have held that a mere change in the size/proportion of a device does not render said device patentable. (See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955) (Claims directed to a lumber package “of appreciable size and weight requiring handling by a lift truck” where held unpatentable over prior art lumber packages which could be lifted by hand because limitations relating to the size of the package were not sufficient to patentably distinguish over the prior art. Also see *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.)

With respect to claim 38, the reference discloses that the sample is moved from the ablation device/reaction chamber into a measurement position. The claim states that a conductor can be passed into the reaction chamber. Since the process

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performed in the chamber would determine the need of a conductor or not for the process to be performed, then the device would inherently need a conductor in order to operate as intended. If the process used to prepare the sample requires a conductor to operate as intended, then the conductor would be in the chamber in order for it to operate to perform the needed reaction.

With respect to claims 40, 41, and 42, the ablative device/reaction chamber is illustrated, for example, in figure 1 and is thus illustrated to be used with the microscope, having a base body and a chamber. The device is shown to be a stand alone device/chamber and thus would be a chamber itself.

With respect to claim 44, Magerle discloses a method of investigating surfaces with a scanning probe microscope wherein the scanning probe microscope can scan a surface. Column 11, lines 16 through 29 disclose that the sample is moved from a measurement position to the ablating device and then back from the device/chamber into a measurement position. While the reference does not specifically disclose that the chamber is opened and/or closed, since the device is disclosed to utilize specific processes which would require a chamber that is closed, then it would be obvious to one of ordinary skill in the art to have a device that opens and closes if it is needed, for example, for a chemical reactive process.

With respect to claim 48, the reference discloses that all the various processes are carried out via a controller.

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13. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Magerle as applied to claim 30 above, and further in view of Adams et al. (U.S. patent Application Publication Number 2005/0009197; hereinafter referred to as Adams).

14. While the Magerle reference discloses the majority of the claim limitations, the reference is silent with regard to the types of actuators that are used in order move or manipulate the probe. Adams discloses a device that utilizes a microscope with a cantilever type probe, similar to the device disclosed in the Magerle reference. Adams discloses in paragraph [0049] that piezoelectric actuators are utilized as a means of moving the cantilevered probe. Therefore, it would be obvious to utilize the piezoelectric actuators of the Adams reference to move the cantilevers of the Magerle reference as they are both probe type microscopic devices.

#### ***Allowable Subject Matter***

15. Claims 35, 36, 39, 43, and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RODNEY T. FRANK whose telephone number is (571)272-2193. The examiner can normally be reached on M-F 9-5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hezron Williams/  
Supervisory Patent Examiner, Art  
Unit 2856

/R. T. F./  
Examiner, Art Unit 2856  
July 29, 2010